

ABSTRACT

A second-order Volterra filter has a quadratic section including a plurality of multiplication units that multiply a first input signal with a second input signal. One of the multiplication units employs a signal not delayed from the first input signal, as the second input signal. A remaining one of the multiplication units employs a signal delayed a preset time from the first input signal, as the second input signal. The one of the multiplication units includes a multiplier that multiplies the signal output from the one of the multiplication units and a signal output from each of one or more delay units, each with a preset coefficient. A step gain parameter for updating each preset coefficient of a multiplier of the remaining one of the multiplication units is twice a step gain parameter for updating each preset coefficient of the multiplier of the one of the multiplication units.